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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Meetings of March. The regular monthly meeting of the American Geographical Society was held on March 20 at the Engineering Societies' Building, 29 West Thirty-ninth Street. President Greenough presided. In addition to presenting the David Livingstone Centenary Medal to Colonel Theodore Roosevelt on behalf of the Society, as described at the beginning of this number, the President submitted for confirmation the names of 130 candidates for Fellowship. Thereupon a vote was taken and they were declared elected.

On March 6, at an inter-monthly meeting, Professor J. Russell Smith, of the University of Pennsylvania, addressed the Society on "The Mediterranean Tree Farmers." The lecture described the practice, common in Mediterranean countries, of planting fruit and other productive trees in regions unfit for agriculture. Professor Smith's extensive field studies in North Africa, Spain, and Portugal have led him to believe that the same method could be applied with profit in our Appalachian region and semi-arid West. An article by him dealing with one phase of this topic will be remembered by readers of the *Review* ("The Oak Tree and Man's Environment" in the January, 1916, number).

The Annals of the Association of American Geographers. Volume 6, for 1916, of the *Annals of the Association of American Geographers* has just appeared. In accordance with the reciprocal arrangement between the Association and this Society, a copy of the Annals may be obtained free of charge by Fellows of the American Geographical Society who make a written request for it. It consists of technical papers which are mainly of interest to professional geographers. The present volume contains: "Some Problems in Geographic Education, With Special Reference to Secondary Schools," by R. E. Dodge; "Physiographic Divisions of the United States," with map, 1:7,000,000, by N. E. Fenneman; "The Prevailing Winds of the United States," by R. DeC. Ward; "Memorial of Edward Van Dyke Robinson," by R. E. Dodge. Extended notices will appear later in the *Review.*

NORTH AMERICA

Revival of the American Merchant Marine. Discussion of the present low status of our merchant marine inevitably evokes a comparison with conditions in the golden age of American shipbuilding sixty years ago. It is recalled that the tonnage of nearly 600,000 built in 1855 has only once been exceeded since, in 1908, the high figure for that year being accounted for by the great output of steel vessels to accommodate the extraordinary commercial development of the Great Lakes. After the impetus to navigation given by the California gold discoveries American ocean navigation fell rapidly behind, in part through the failure of the American yards to turn to the new steam-driven vessels that were fast superseding the old sailing ships.

The present heavy demand for ocean-going ships has called forth a revival in all branches of the shipbuilding industry. Returns to the Bureau of Navigation of the Department of Commerce on January 1, 1917, show under construction or contract vessels with a tonnage of over 1,700,000, exclusive of those for the navy. This is nearly as much as the total world tonnage put out in 1916. About 12 per cent of it represents wooden ships. The small wooden sailing ships are reaping unwonted harvests today. From local coasting trade they have turned to overseas trade; several, for instance, are engaged in carrying coal and lumber to South American ports. The United States is not the only gainer in this respect. A recent *Commerce Report* (Nov. 20, 1916) notes that a large fleet of small Danish schooners, diverted from the Baltic, is engaged in a carrying trade between Chatham, New Brunswick, and Europe. Of the wooden ships now building in American yards 62 are accredited to ports of the New England and Middle Atlantic States. Of these all but one are to be under sail. A number of magazine articles (among them, R. D. Paine's "Old Seaports Awakened," *Scribner's Magazine,* November, 1916) bear witness to general interest in this revival of a famous hereditary trade. On the contrary, most of the hundred vessels building in the ports of the South Atlantic, Gulf, and Pacific States are under power. In this new policy of expansion the United States has a rival in Japan. In 1916 the output of the latter's yards was three times that of the previous year, and for the first time she appeared as a seller of ships (*Commerce Repts.*, Dec. 27, 1916; Jan. 5, 26 and 27, Feb. 9, March 3, 1917).

Irrigation in the Okanogan Valley, Washington. The valley of the Okanogan River in Washington has been reclaimed for a distance of 30 miles south of the Canadian boundary by means of irrigation works which were completed on July 7, 1916. Ten thousand acres of land in the favored fruit section of the state are now available for exploitation. The soil and climate of this valley are particularly favorable to apple growing, and the cattle ranges of the bordering hills will also encourage the raising of valuable forage crops.

As described by J. C. Stevens in the *Engineering Record* for November 25, 1916, the water is diverted from the Similkameen River at a point 11 miles above Oroville, at which town it is distributed to three different sections of the region to be irrigated. The main branch crosses the Similkameen River and is continued southward on the west side of the Okanogan valley. A branch is also run on the eastern side of the same valley, while another section runs northward as far as the Canadian border. The undertaking was noteworthy by reason of the rapidity of its completion, construction having begun and ended within a year's time despite the impediment of an unusually snowy winter. The financing of the project by the landowners exclusively is another interesting feature. Some four thousand acres of the irrigated land are now under development.

Aërological Work of the U. S. Weather Bureau. *Supplement No. 3 of the Monthly Weather Review* (1916) has the sub-title ''Aërology No. 1'' and is devoted to several papers which deal with the meteorology of the free air. The present *Supplement* is the first of a series which will take the place, so far as the publication of free-air data is concerned, of the former *Bulletin of the Mount Weather Observatory*, which is no longer issued. A supplement in this aërological series is to be issued about once in three months. The interruption of the free-air work owing to its transfer from Mount Weather to the Middle West has made it necessary to include in the present publication all the data obtained in 1915.

The first article contains data obtained at Fort Omaha with *ballons sondes* made in the United States. These balloons, it is noted, were not as well suited to the purpose as those which had been imported from Russia before the war. The previous free-air work at Fort Omaha had been done in summer, autumn, and winter. The observations here included were made in spring.

An unusual opportunity for securing ocean meteorological observations was presented in the use of the U. S. Coast Guard cutter *Seneca* while that vessel was on ice-patrol duty in the North Atlantic. The Bureau of Standards, the Bureau of Fisheries, and the Weather Bureau co-operated in securing the data. The work done by the Weather Bureau in securing free-air data is discussed in the second article in the present *Supplement*.

Free-air observations at Mount Weather were discontinued June 30, 1914, and steps were taken toward the establishment of several aërological stations on the plains of the Middle West. The third and fourth articles describe the station on Drexel Farm (13 miles west of Omaha, Nebr.) and give the free-air data obtained there during 1916. Instead of millimeters of mercury, millibars are used in this publication.

R. DeC. Ward.

Sponge Fishery in the Bahamas. Sponges, sold on the market as ''velvet'' and ''wool,'' constitute over half the exports of the Bahamas. For some years past the Marine Products Board has been investigating the decline in production of the latter, or more valuable, class. The cause of the decline has now been definitely ascertained (*Annual Colon. Repts. No. 900,* London, 1916). The sponge is a parasitical growth and attaches itself to the conch shell naturally abundant in the current mud, the habitat of the wool sponge. Constant removal by the sponge fishers has led to depletion of the supply of shells and consequently of sponge.

EUROPE

The Serbian Homeland. The country inhabited by Serbians, a well-defined region in the western part of the Balkan Peninsula, is described by the eminent Serbian geographer, Professor Jovan Cvijić, in a book entitled ''The Unity of the Southern Slavs'' (in Serbian, Nish, 1915; abstracted by Emile Haumant in the *Annal. de Géogr.* for Nov. 15, 1915). According to this authority, the differences of topography and climate in the Dinaric region are of a minor character and do no impair the unity of the territory peopled by Serbians.

Three regions can nevertheless be distinguished in this area. The first, and largest, is the country of mountains and plateaus between the Save and the Adriatic, which is the real homeland of the race. Towards the northeast it faces the region of summer rainfall, and on this side is therefore covered by a pleasant mantle of vegetation, while the southwestern half is, in general, bleak and barren. To the north lies the Pannonian basin, the second region. Its rivers are all directed towards Belgrade, which thus becomes a natural center of activity. A steady emigration from the first to the second region has taken place since the end of the period of Turkish invasions. The third region is the relatively narrow coastal strip along the Adriatic, whose distinctive features are a Mediterranean climate and a karst topography, characteristic of limestone areas. Here the area of agricultural land is small and this, according to Cvijić, forces the inhabitants to maintain relations with their kinsmen of the mountainous rearland. He therefore holds that the intercourse of the coast people has been much more active with the mountainous region back of them than with the opposite shore of the Adriatic, in spite of the prolonged Italian control over Dalmatia.

In this diverse territory a single people, the Serbians, have maintained identity of customs and traditions. The literary language is the same everywhere. At the same time the typical Serbian is the inhabitant of the *planina,* the plateau or block mountain. The majority of Serbian leaders have risen from this type.

Bulgaria's Forest Resources. Bulgaria's forests may be divided into four zones according to altitude. The lowest and warmest extends from sea level up to an altitude of 1,300 feet, and is the home of the oak, elm, and ash. Above this belt, up to a height of 2,600 feet, is the oak-beech transition zone. Between 2,600 and 4,300 feet is the typical beech zone. It contains ample supplies of timber. Finally a pine zone, equally well stocked, extends between 4,300 and 6,600 feet.

According to a note published in *Commerce Reports* for January 30, 1917 (pp. 396-398), Bulgaria's forest area in 1908 comprised 7,086,232 acres, of which 1,611,423 were national property. No statistics have been available since that date. The forests were then valued at $125,000,000, but entire sections were destroyed during the Balkan wars of 1912 and 1913.

The deciduous varieties of trees predominate in the forests of the Balkan Range. The Stara Planina region, with its beeches, willows, and poplars, is typical. The coniferous trees abound particularly in the Rilo and Rhodope Mountains. Access to the forested areas in Bulgaria is generally difficult. This condition accounts for the fact that some 30 per cent. of the total area of the country consists of forests.

ASIA

The Foreign Trade of Chinese Turkestan. Commercial and financial conditions in this region are summarized in the consular reports entitled ''Indo-Yarkand Trade,'' reproduced in the *Board of Trade Journal* for Feb. 24, 1916, and Jan. 4, 1917 (see also reports ''Trade of Ladakh (Kashmir Province) with Central Asia'' in Feb. 3, 1916, and Dec. 28, 1916, issues of the same journal). Yarkand, at the western edge of the Tarim Desert, in spite of poor communications, carries on a considerable trade with Russia, Afghanistan, and India. The trade route to India, via Leh, is one of the highest and most arduous in the world. It crosses range after range to reach, in one of the Karakoram passes, its maximum altitude of 18,550 feet. Along it travel can be maintained for only six months in the year. A somewhat shorter and more accessible road between Peshawar and Yarkand is used by Bajauris and other tribesmen of the Indian Northwest frontier. This route passes through Chitral and the Baroghil Pass of the Pamirs.

With Russia, communications present less difficulty. At least half a dozen trade roads connect Kashgar with the Russian provinces of Ferghanâ and Semiryechensk. The main route runs across the Terek Pass at an altitude of 11,000 feet to the easterly continuation of the Trans-Caspian railroad, now open to within a short distance of the border. Yet another outlet will be afforded with the completion of the projected continuation of the Tashkent-Orenburg line along the northern foot of the Tian Shan. During the summer months, trade is also maintained with the province of Badakhshan, northeastern Afghanistan. The Afghan traders bring almonds, pistachios, and horses to exchange for Russian piece goods and carpets. The exports of Turkestan to Russia consist mainly of raw materials—cotton, silk, and wool, though the local white cloth and carpets constitute considerable items. The bulk of the imports is made up of cotton tissues. For the year ended March 31, 1916, the total value of the import trade is estimated at from $1,750,000 to $2,000,000 (3,500,000 to 4,000,000 roubles) and the export trade at nearly $2,000,000.

Trade with India is not so extensive: it amounted to about $800,000 (2,437,363 rupees) in 1914-1915 and to less for the last financial year. Raw silk and *charas,* a drug extracted from hemp, constitute the principal exports. The value of the outgoing trade, however, is usually inferior in value to the incoming, and the deficiency is made up by export of bullion as well as by bank drafts and money orders. Cotton piece-goods of British and Indian manufacture form the chief imports. From Assam are sent skins which provide the fur used around the headpiece worn by the natives of High Asia. An ever-increasing consumption of spices from southern India obtains in Chinese Turkestan and the western provinces of China. It is surpising to find that Japanese cotton and silk prints as well as Chinese silk reach Yarkand by way of the roundabout Indian route.

Salt Production in China. The introduction of recent administrative reforms calls attention to the salt industry, China's second largest source of revenue (E. S. Cunningham: Chinese Methods of Salt Production, *Commerce Repts.,* July 25, 1916). While the productive districts are widely scattered, the chief source lies round Tzu Liu Ching in the hills of Szechuen, between Chengtu and the treaty port of Chungking. The annual production of the province is estimated at over 300,000 tons, of which over a fifth is available for export to neighboring regions. This large output is obtained by very ancient and primitive methods of extraction. Thus, water buffaloes supply the motive power for pumping the brine from the deep wells—some are over 3,000 feet deep—drilled in the first instance by the methods of ten centuries ago (H. K. Richardson: The Salt-Wells of Tzuliutsing, *Scientific American Suppl.,* Nov. 18, 1916). The introduction of modern machinery will depend, however, not only upon geographic factors, chief of which is transportation costs in the canyoned country of the upper Yangtze River, but also upon the attitude of the Chinese government, the ultimate control of all matters pertaining to the salt industry.

An interesting contrast in methods of salt getting is illustrated in the *Scientific American* for December 16, 1916, in an article entitled "How Salt is Extracted from the Great Salt Lake."

Food-Plant and Wood Resources of the Philippines. Two recent publications of the Department of the Interior in Manila should prove useful in any study of the material resources of the Philippines. "The Food Plants of the Philippines," by P. J. Wester (*Philippine Agric. Rev.,* Vol. 9, 1916, No. 3), replaces the description of the economic plants of the islands made by the Bureau of Agriculture twelve years ago. Since that date many useful indigenous species have been discovered and many exotics have been successfully introduced. Yet despite the wealth of food plants and the favorable conditions for their cultivation, the Philippines annually import large quantities of foodstuffs that could be produced at home. During 1915 importations of this class amounted to $8,000,000, or about one-sixth the total imports. Production has kept pace with the increase in population, but beyond this "does not appear to have increased materially during the last ten-year period."

"Commercial Woods of the Philippines: Their Preparation and Uses," by W. F. Sherfesee (*Bur. of Forestry Bull. No. 14,* 1916), is a comprehensive work written mainly from the point of view of the wood user. It embraces a general description of the status of the industry in the islands, discussions of the properties, uses, and distinguishing characteristics of the woods, and a detailed description of some 360 species.

WORLD AS A WHOLE AND LARGER PARTS

Racial Migrations Before the First Siege of Troy. The first siege of Troy was not the one described by Homer but a much earlier one, prior to 2000 B. C., according to a recent article by Harold Peake (Racial Elements Concerned in the First Siege of Troy, *Journ. of the Anthropol. Soc. of Great Britain,* Vol. 46, 1916, pp. 154-172.) Mr. Peake takes this siege as his point of departure, but his chief concern is the various migrations which may have led up to it. This leads him to discuss the origin and spread of the Nordics along the lines followed by Mr. Grant in his book on "The Passing of the Great Race" (see the review in the December *Review,* pp. 477-478, and the article, with maps, in the November *Review,* pp. 354-360). Incidentally Mr. Peake suggests that the blondness of the Nordics is not necessarily due to long residence in a cool, humid climate. There is considerable evidence that the Nordics originated in Russia east of the Dnieper River. On the dusty steppes and barren tundras, which were prevalent there in the Reindeer Period, natural selection may have caused the hair and complexion of the Nordics gradually to acquire the khaki shades which would be the most protective in that particular environment. This is merely a suggestion, and the author does not insist upon it.

Coming to his main object Mr. Peake shows that shortly before the first siege of Troy there occurred a number of great migrations which were apparently due to a period of drought. In his book on "Palestine" the writer has suggested that the Canaanite invasions of Syria and Mesopotamia may indicate a dry period culminating about 2400-2500 B. C. Such a period would naturally cause other migrations. Mr. Peake points out that recently discovered facts point to several such migrations. For instance, about 2450 B. C. Canaanite tribes from Arabia crossed the Sinaitic peninsula and occupied the Egyptian delta, just as others a little later invaded Palestine and Syria, bringing with them the knowledge of metals and founding Damascus. Again, about 2300 B. C., drought apparently caused the Bak tribes east and southeast of the Caspian Sea to migrate northeastward and finally to reach China, where they established a dynasty about 2000 B. C. At approximately the same time the Nordics seem to have migrated from the Volga steppes. Some went east to Persia, where we find them later as the Cassites. Others passed through Galicia to Rumania and thence across the Balkans. Part went down the east coast of Greece to Thessaly, while others crossed the Hellespont and destroyed Hissarlik II, the predecessor of Homer's Troy. Thus all over the ancient world there was a great wave of migration a little more than 4,000 years ago, just as there was again about 1200 B. C. and a third time a few hundred years after Christ. ELLSWORTH HUNTINGTON.

POLAR REGIONS

A Third Relief Expedition for the Crocker Land Party. It will be recalled (*Geogr. Rev.*, Vol. 1, 1916, pp. 145-146, and Vol. 2, 1916, pp. 65 and 471) that two attempts have already been made to relieve the marooned members of the Crocker Land Expedition in northern Greenland. The first relief ship, the *George B. Cluett,* sent out in the summer of 1915, was caught in the ice, broke her engine shaft, and was forced to spend the following winter in Parker Snow Bay (76° N. and 68½° W.), 37 miles west-northwest of Cape York, at the southern entrance to the restricted waters which lead from Baffin Bay to the Arctic Ocean. Because she did not return as expected, in the autumn of 1915, it became necessary to send a second relief ship, and the steamer *Danmark* of the Greenland Mining Company was chartered for this purpose and sent north in the summer of 1916. Her failure to return last fall indicates that she, too, has been forced by the ice conditions to winter in the north. She was last reported on August 20, 1916, in Melville Bay, bound north, having made only 150 miles in the preceding seventeen days. It is not even known whether she reached North Star Bay (in Wostenholme Sound, 76½° N., on the other side of the peninsula from Parker Snow Bay), the headquarters of the six remaining members of the expedition, among whom are Dr. Hovey, MacMillan, and Ekblaw.

The probability is that some of these men, as Green, Allen, and Tanquary did last year, are sledging down the coast to reach one of the settlements in southern Greenland. Ordinarily a cable message from them might be expected about the middle of May, via the Faroe Islands, giving information as to the condition of the party and the necessity for sending a relief ship or not. Now, however, as our Society is informed by the Acting Chairman of the Committee in Charge, the Danish Government announces that owing to war conditions the usual sailing of its supply vessels to Greenland has been postponed. This means that if any members of the expedition sledge down to southern Greenland, there will be no way for them to come out or even to send a message. Under these circumstances the committee is proceeding to charter a third vessel and despatch her north to make certain of the return of the members of the expedition this summer. All possible ships are now being canvassed, and it is hoped it will be possible to secure one of the Newfoundland sealers. These boats are equipped with wireless and have adequate steam power. The vessel will leave St. John's early in July and it is hoped she will return by late August.

While the failure of the *Danmark* to bring back the explorers is a keen disappointment, no grave anxiety need be felt for their safety. The *Danmark* has ample provisions, and, even if she should not have reached North Star Bay, it is highly probable that contact has been established with the marooned men and that they are in far more comfortable quarters than last winter.

ECONOMIC GEOGRAPHY

The Economic Significance of the Time of Rainfall. An important and suggestive study of daytime and night-time precipitation and the economic significance of the diurnal distribution of rainfall has been made by J. B. Kincer (Daytime and Nighttime Precipitation and Their Economic Significance, *Monthly Weather Rev.*, Nov., 1916). The subject is one which has thus far received little attention. Rainfall data for Lincoln, Nebr., Evansville, Ind., and Thomasville, Ga., are shown in diagrams. Three charts give the average precipitation (for the United States) in inches during the day, 8 A. M. to 8 P. M. and night, 8 P. M. to 8 A. M. for the season, April to September, incl., 1895-1914; and also the percentage of the average precipitation for the season, as above, that occurs at night. Many interesting facts are brought out in the discussion. In the Central Plains the greatest concentration of night rains occurs in the harvesting and threshing season. Daytime rains are then comparatively infrequent. The economic bearing of this condition is obvious. There is the least possible interruption of harvesting operations, and the fact that the summer showers come chiefly at night means that less water is evaporated than would be the case under sunshine. In the southeastern states summer rainfall is usually plentiful, so that the question of the diurnal distribution is of much less economic importance so far as crops are concerned. R. DeC. Ward.

Weather Insurance. The whole question of insuring agricultural products against damage or loss because of unfavorable weather is one to which increasing attention is certain to be paid in the immediate future. Man cannot prevent the occurrence of most of the unfavorable meteorological conditions which result in the injury of his crops, although protection against frost is a striking illustration of a successful campaign which, in the United States especially, has over and over again proved its efficacy. William G. Reed, of the U. S. Office of Farm Management, has been giving attention to weather insurance as a phase of the business side of farming (Weather Insurance, *Monthly Weather Rev.*, Oct., 1916; with H. R. Tolley: Weather as a Business Risk in Farming, *Geogr. Rev.*, July, 1916). It is believed that the apparent capriciousness of the weather and the fact that weather conditions are generally widespread account for failure to establish any successful plan for insurance against unfavorable weather. The author is of opinion that the weather hazard can be determined with such accuracy in many instances that insurance against the occurrence of killing frost or other unfavorable weather condition may be arranged on a sound business basis, and not as a gambling operation. R. DeC. Ward.

GEOGRAPHICAL NEWS

A French Prize in Pre-Columbian American Archeology. According to an announcement just received from the Bibliothèque Nationale of Paris, the Prix Angrand, of the value of 5,000 francs, will be awarded in 1918 for the best work published during the five years 1913-17 on the Pre-Columbian history, ethnography, archeology, or linguistics of the American aborigines. Candidates should submit ten copies of their work to the Secrétariat of the Bibliothèque Nationale before January 1, 1918. A jury of eighteen members, including representatives of the Geographical Society of Paris (two) and of geographical and anthropological societies outside of France (up to five members), will pass on the works submitted.

Personal

Professor Raoul Blanchard, professor of geography at the University of Grenoble, whose appointment as visiting professor from France at Harvard University for the current semester was noted in the February *Review* (p. 155), gave an illustrated lecture in French at Columbia University on March 26 entitled "Flanders as a Theater of Military Operations." Professor Blanchard briefly described the natural divisions of Flanders and then vividly pointed out how completely the physical features of the region have influenced military operations during the present war.

Mr. N. H. Darton of the U. S. Geological Survey gave a lecture on March 9 at Lehigh University on "The Grand Canyon of Arizona: A Great Object-Lesson in Geology and Geography." Many new views and other illustrations were shown.

Mr. Charles Wellington Furlong, F.R.G.S., gave a lecture on April 4 before the Geographical Society of Philadelphia entitled "Chile and the Fuegian Archipelago." Mr. Furlong's lecture dealt with the topics treated in his two recent articles in the *Review* ("Some Effects of Environment on the Fuegian Tribes," January, 1917, and "Tribal Distribution and Settlements of the Fuegians," March, 1917).

Dr. J. J. Galloway read a paper before the New York Academy of Sciences on March 17 entitled "The Physiographic History of the Nashville Basin." The paper was illustrated with charts and maps.

Mr. Leo E. Miller of the American Museum of Natural History gave an illustrated lecture before the Linnaean Society of New York on March 13 entitled ''A Bird's-eye View of South America.'' Mr. Miller's lecture was based on the experiences of his zoölogical trips in South America. The present number of the *Review* contains the first of two articles on one of these trips, up the Orinoco in 1912-13. The March, 1916, number had an article from his pen entitled ''The Descent of the Rio Gy-Paraná,'' which gave an account of his activities on the Roosevelt-Rondon expedition of 1914.

Hon. Robert Sterling Yard of the newly created National Parks Service spoke on March 17 before the Geographical Society of Philadelphia on ''Our National Parks.'' Previous reference to this speaker and the government bureau with which he is connected was made in the February *Review* (p. 155).

Obituary

Colonel Charles Chaillé-Long died on March 24 at Virginia Beach near Norfolk, Va., in his seventy-fifth year. He was best known to geographers for his explorations in the upper Nile basin. As an officer of the Egyptian army and chief of staff of General (then Lieutenant Colonel) Gordon he conducted an expedition in 1874 from Gondokoro (5° N.) on the upper Nile to Lake Victoria, on which his route first paralleled the Nile in a south-southeastward direction to Dufile (3½° N.), then led south cross-country to the river's bend at Foweira (2¼° N.), and thence south to the northern shore of Lake Victoria at Murchison Bay. On his return he traveled northeast until he struck the Nile, here the outlet of Lake Victoria, at Urondogani (¾° N.). Above this point the river had been explored up to the lake by Speke on his memorable voyage in 1862. Chaillé-Long now descended the river, which soon entered a large swamp-bordered and *sudd*-infested lake, which he named Lake Ibrahim (now known as Lake Choga). Finally an outlet was found, which proved to be the Nile, and this was descended to Foweira, whence the return was made overland to Gondokoro. By this trip the identity, already conjectured, of the Victoria Nile with the river, discovered by Baker in 1864, which issued from Lake Albert, was definitely established and a new lake discovered in the system of reservoir-lakes which are the main feeders of the great river. In recognition of these additions to geographical knowledge the Charles P. Daly Medal was awarded by this Society in 1910 to Colonel Chaillé-Long (see the account in *Bull. Amer. Geogr. Soc.*, Vol. 42, 1910, pp. 205-207).

In 1875 Colonel Chaillé-Long made another trip from Gondokoro which led him west-southwest along the Congo-Nile divide region, carrying him across the upper tributaries of the Bahr-el-Ghazal system to a point connecting with the farthest southeast of Schweinfurth's route in 1870. The most important of Colonel Chaillé-Long's geographical works are ''Central Africa: Naked Truths of Naked People,'' with route map, New York, 1877; ''Les Sources du Nil,'' Paris, 1891; ''L'Égypte et Ses Provinces Perdues,'' Paris, 1892 (the Society's copy bears author's autograph).

Mr. Willard D. Johnson, long connected with the U. S. Geological Survey as topographer, died in Washington on February 13 at the age of fifty-seven. His first work on the Survey was under G. K. Gilbert in 1879-80, on Lake Bonneville. He was appointed assistant topographer in the Topographic Branch in 1882, and continued in that branch of the service until 1896, working his way up through the various grades. From 1888 to 1890 he was in charge of the topographic surveys of the drainage basin of the Arkansas River in Colorado. In 1891 he was placed in charge of the California office of the Survey, which position he held for three years. He was one of the charter members and director of the Sierra Club in 1892. In 1895 he accompanied as topographer the hazardous expedition of the Bureau of Ethnology under W J McGee to study the Seri Indians, a savage tribe inhabiting Tiburon Island in the Gulf of California and the opposite mainland in Sonora, Mexico (see W J McGee: The Seri Indians, *17th Ann. Rept. Bureau of Amer. Ethnol.*, 1895-96, Pt. I, pp. 1-344* [duplicate pagination], and W J McGee and W. D. Johnson: Seriland, *Natl. Geogr. Mag.*, Vol. 7, 1896, pp. 125-133). Mr. Johnson joined the Water Resources Branch of the Survey in 1897, working in Oklahoma on the underflow water of the Arkansas River and allied problems of the Great Plains. As a result of this work he published an extended report on ''The High Plains and Their Utilization'' (*21st and 22nd Am. Repts. U. S. Geol. Survey*, 1899-1901, Pt. IV in each, pp. 601-741 and 631-669, respectively). From 1901 to 1904 he was in Utah. In 1905 he changed from topography to geology, and took up work in the Sierra Nevadas, studying chiefly the glacial geology. As a result of these studies, he formulated his theory of *bergschrunds* (see W. H. Hobbs: Characteristics of Existing Glaciers, New York, 1911, pp. 15-17, with references). Later, in 1907, he studied the displacements of the earthquake of 1872 in Owens Valley, but